



2005 Minerals Yearbook

TURKEY

THE MINERAL INDUSTRY OF TURKEY

By Philip M. Mobbs

Turkey had a diverse and dynamic mineral industry. The nation was a leading producer of barite, boron minerals, celestite (strontium), chromite, feldspar, limestone, magnesite, marble, perlite, and pumice, and was a significant source of value-added processed mineral commodities, such as cement, ceramics, glass, and steel.

The national economy had stabilized since the economic crisis of 2001; inflation declined to an annual rate of 8.2% in 2005 compared with a revised 8.6% in 2004. The International Monetary Fund (2006^{§1}) estimated that Turkey's gross domestic product (GDP) based on purchasing power parity was about \$569 billion² in 2005, and the GDP per capita based on purchasing power parity was \$7,950.

Trade

In 2005, total Turkish exports were valued at about \$76.9 billion compared with a revised \$67 billion in 2004. Of the total exports in 2005, iron and steel accounted for about \$5.8 billion, which was a 4% drop in value compared with that of 2004; crude oil and petroleum products, \$2 billion, which was an 82% increase compared with that of 2004; nonferrous metals, \$917 million, which was a 38% increase compared with that of 2004; fertilizers and crude ores, \$595 million, which was a 19% increase compared with that of 2004; natural gas, \$505 million, which was a 98% increase compared with that of 2004; and metalliferous ores and metal scrap, \$411 million, which was a 37% increase compared with that of 2004. Total imports were valued at about \$110 billion in 2005 compared with a revised \$90.9 billion in 2004. Of total imports in 2005, crude petroleum and petroleum products accounted for \$12.48 billion, which was a 28% increase in value compared with that of 2004; iron and steel, \$6.7 billion, which was a 27% increase compared with that of 2004; natural gas, \$7.1 billion, which was a 61% increase compared with that of 2004; metalliferous ores and scrap, \$3.6 billion, which was a 7% increase compared with that of 2004; nonferrous metals, \$3 billion, which was a 34% increase compared with that of 2004; and coal and coke, about \$1.7 billion, which was a 28% increase compared with that of 2004 (T.C. Başbakanlık Devlet Planlama Teşkilatı Müsteşarlığı, 2006[§]).

Structure of the Mineral Industry

The private sector dominated the country's industrial minerals and metals sectors. In 2005, 47,401 new companies

¹References that include a section mark (§) are found in the Internet References Cited section.

²Where necessary, values have been converted from Turkish lira (TL) to U.S. dollars (US\$) at the average rate of TL1.35 million=US\$1.00 for 2005 and TL1.45 million=US\$1.00 for 2004.

and cooperatives were established in Turkey, of which 453 were mining or quarrying companies. Thirty-nine mining or quarrying companies were closed in 2005 compared with 47 in 2004 (T.C. Başbakanlık Türkiye İstatistik Kurumu, 2006[§]). The Government's privatization of state-owned companies continued. Establishments divested by the Government's T.C. Başbakanlık Özelleştirme İdaresi Başkanlığı (Privatization Administration) included Eti Alüminyum A.Ş. Genel Müdürlüğü; several fertilizer plants of Türkiye Gübre San. A.Ş.; the petroleum refineries of Türkiye Petrol Rafineleri A.Ş.; and the salt operations of Tütün, Tütün Mamulleri, Tuz ve Alkol İşletmeleri (TEKEL) A.Ş.

Outlook

Numerous copper and gold exploration programs are underway in Turkey. The development of any of the gold prospects would significantly increase the total national gold output. Project development feasibility studies expected to be completed in 2006 included those of the Aliaga zinc oxide recovery project, the Çaldağ lateritic nickel deposit, and the Çöpler gold project. Objections by nongovernmental organizations have delayed the construction of the Cerattepe underground gold mine and pushed back initial production to 2009.

Turkey, which is a major energy transit corridor, connects energy producers in Asia with consumers in Europe. Natural gas from Iran and Russia is piped into Turkey. The South Caucasus gas pipeline is expected to begin deliveries of natural gas to Turkey from Azerbaijan beginning in 2006. Connection of the Turkish natural gas pipeline system with the European gas network could provide an alternative route to allow surplus Eurasian and Iranian natural gas to flow into Europe.

In recent years, crude oil from Iraq moved only intermittently through Turkey to the export terminals of the Çeyhan oil docks; throughput was limited by the frequent sabotage of the Iraqi section of the pipeline. Regular shipments of crude oil from Iraq are not expected resume until the security situation in Iraq is resolved. The Çeyhan docks are expected to export additional volumes of crude oil beginning in 2006 when the delayed Baku-Tbilisi-Çeyhan oil pipeline is expected to start operations.

Internet References Cited

- International Monetary Fund, 2006 (September), Turkey, World Economic Outlook Database, accessed September 15, 2006, via URL <http://www.imf.org/external/pubs/ft/weo/2006/02/data/index.aspx>.
- T.C. Başbakanlık Devlet Planlama Teşkilatı Müsteşarlığı, 2006 (October), Main economic indicators, Part 5— Foreign [sic] trade and balance of payment [sic], accessed January 12, 2007, via URL <http://ekutup.dpt.gov.tr/teg/2006/10/mei.html>.
- T.C. Başbakanlık Türkiye İstatistik Kurumu, 2006 (January 26), Number of newly established and liquidated companies by economic activity, accessed January 12, 2007, at URL http://www.die.gov.tr/ENGLISH/SONIST/SIRKET/k_260106.xls.

Major Sources of Information

İstanbul Maden ve Metal İhracatçı Birlikleri (Istanbul Mineral and Metals Exporters' Association)
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 Internet: <http://www.die.gov.tr>

T.C. Enerji ve Tabii Kaynaklar Bakanlığı (Turkish Ministry of Energy and Natural Resources)
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 Internet: <http://www.enerji.gov.tr>

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TABLE 1
 TURKEY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2001	2002	2003	2004	2005 ^c
METALS					
Aluminum:					
Bauxite ²	242,040	287,403	364,306	365,836	475,349 ³
Alumina, gross weight	145,993	152,869	162,174	169,991	112,558 ³
Metal, smelter ^c	61,730 ³	62,501 ³	63,000	60,000	60,000
Antimony:^c					
Ore, mine output:					
Gross weight	6,300	4,800	12,500	20,107 ³	28,000
Sb content	330	250	650	900	1,400
Concentrates:					
Gross weight	1,000	1,000	2,000	3,000 ^r	5,000
Sb content	200	150	400	700 ^r	1,200
Chromium, gross weight (34% to 43% chromic oxide) ⁴	389,759	313,637	229,294	506,421	700,000
Copper:					
Mine output, exclusive of pyrite:⁵					
Gross weight	3,467,306	2,942,721	2,620,896	2,356,147	2,946,106
Cu content of ore	56,864	48,253	58,000 ^c	49,000 ^c	48,000
Metal:					
Smelter output, primary and secondary	33,504	32,550	30,400 ^c	11,500 ^c	9,000
Refined ^c	58,400	41,000	45,000	50,000	95,000
Gold ^{c,6} kilograms	2,000	5,000	6,500	4,500	5,000
Iron and steel:					
Iron ore:					
Gross weight thousand metric tons	3,932	3,433	3,429	4,120 ^r	4,598 ³
Fe content ^c do.	2,100	1,830	1,830	2,200 ^r	2,450
Metal:					
Pig iron and ferroalloys:					
Ferrochromium	50,735	11,200	35,393	28,701	26,043 ³
Ferrosilicon	5,895	7,245	7,000 ^c	--	--
Pig iron	247,598	157,622	181,080	213,210	215,000
Steel, crude including castings thousand metric tons	14,382	16,046	18,298	20,478 ^r	20,960 ³

See footnotes at end of table.

TABLE 1--Continued
TURKEY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2001	2002	2003	2004	2005 ^c	
METALS--Continued						
Lead:						
Mine output, Pb and Pb-Zn ores:						
Gross weight	388,795	375,592	379,250	407,637	450,000	
Pb content	17,923	17,352	17,500	18,650	21,000	
Concentrates: ^c						
Gross weight	13,000	25,000 ^r	25,000 ^r	26,000 ^r	29,000	
Pb content	8,500	16,000 ^r	16,000 ^r	17,000 ^r	19,000	
Metal, refined ^c	4,000	4,000	6,000	6,000	6,000	
Manganese ore, gross weight ⁷	20,000	20,000	18,000	13,751	15,000	
Nickel, mine output, Ni content ^e	NA	NA	640	40 ^r	1,000	
Silver, mine output, Ag content ⁸	kilograms	118,000	79,000	95,000	73,000 ^e	80,000
Zinc:						
Mine output, Zn and Cu-Zn ore:						
Gross weight	thousand metric tons	816	895	930	765	1,000
Zn content	do.	37	46	47	44	50
Concentrates: ^c						
Gross weight		37,000 ^r	49,000 ^r	49,000 ^r	49,000 ^r	53,000
Zn content		25,300	33,100	33,600	33,400	36,000
INDUSTRIAL MINERALS						
Aluminum sulfate, alunite		11,531	11,389	10,458	10,920	11,000
Barite, crude		57,373	106,843	119,648	134,504	157,179 ³
Boron minerals:						
Run of mine		2,357,592	2,214,064	2,207,092	2,878,930	2,900,000
Concentrates		1,493,361	1,368,000	1,399,000	1,697,000	1,700,000
Refined borates		420,000 ^e	436,000	518,000	715,000	800,000
Cement, hydraulic	thousand metric tons	30,125	32,576	35,077	38,796 ^r	42,787 ³
Clays:						
Bentonite		674,178	559,224	831,146	850,000 ^e	925,000
Kaolin		574,550	372,344	370,455	536,008	580,000
Other ^e		2,506,061 ³	2,500,000	2,500,000	2,750,000	2,750,000
Diatomite		10,000	10,000	10,000	10,000	10,000
Emery		13,629	15,418	15,402	7,902	12,000
Feldspar, run of mine		1,510,293	1,766,387	1,862,310	1,983,336	2,200,000
Fluorspar		4,093	5,344	718	880	800
Glass, crude	thousand metric tons	1,141	1,242	1,315	1,229	1,058 ³
Graphite, run of mine ^e		15,000	1,393 ³	942 ³	1,000	6,000
Gypsum, other than that for cement		328,656	264,038	196,668	250,099	250,000
Lime ^{e,9}	thousand metric tons	3,200	3,300	3,300	3,400	3,400
Magnesite, run of mine		1,450,031	3,044,440	3,224,278	3,732,952	3,400,000
Meerschäum ^c	kilograms	400	300	200	150	170
Nitrogen, N content of ammonia		67,100 ^e	300,500	289,300	329,400	330,000
Perlite, run of mine		70,738	151,902	136,683	133,829	140,000
Pumice		754,052	820,347	895,616	1,035,975	1,000,000
Pyrites, cupreous, gross weight		662,872	952,094	1,103,872	765,432	800,000
Silica sand, gross weight	thousand metric tons	1,207	1,274	1,283	1,188	1,200
Sodium compounds:						
Salt, NaCl, all types	do.	1,771	2,197	2,243	2,158	2,200
Soda ash, trona ^c	do.	640	825	835	846	850
Sodium sulfate, concentrates		300,000 ^e	562,660	556,575	523,285	550,000
Stone:						
Dolomite		915,441	975,971	1,158,539	2,109,362	2,200,000
Limestone, other than for cement	thousand metric tons	40,572	30,261	28,609	30,963	35,000
Marble	cubic meters	460,834	557,630	544,629	668,996	800,000
Quartzite		2,085,791	2,006,654	2,908,584	2,961,932	3,200,000
Strontium minerals, celestite: ^c						
Run of mine		110,000	116,278 ³	116,000 ³	100,000	100,000
Concentrates		63,635 ³	70,000	70,000	60,000	60,000

See footnotes at end of table.

TABLE 1--Continued
TURKEY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2001	2002	2003	2004	2005 ^e	
INDUSTRIAL MINERALS--Continued						
Sulfur: ^c						
S content of pyrites	26,000	34,000 ^f	28,000 ^f	20,000 ^e	20,000	
Byproduct:						
Petroleum	51,000	48,000 ^{r,3}	42,000 ^r	49,000 ^{r,3}	54,000 ³	
Other	75,000	75,000	46,000 ^r	19,000 ^r	20,000	
Total	152,000	157,000 ^r	116,000 ^r	88,000 ^r	94,000	
Talc	883	98	60	60	100	
MINERAL FUELS AND RELATED MATERIALS						
Asphalt, natural	150,000 ^e	118,235	217,759	738,915	700,000	
Carbon black	35,000	37,413	6,754	32,686	26,820	
Coal:						
Hard coal, run of mine	thousand metric tons	3,370	3,313	3,090	2,843	3,050 ³
Lignite, run of mine	do.	58,173	49,627	43,749	43,754	55,626 ³
Coke and semicoke	do.	1,890	2,080	2,543	2,855	2,800
Gas, natural, marketed	thousand cubic meters	600,000 ^e	268,000 ^e	275,947	344,196	600,000
Petroleum:						
Crude	thousand 42-gallon barrels	18,370	17,579	16,980	16,270	16,500
Refinery products:						
Liquefied petroleum gas	do.	8,019	8,580	7,960	8,340	8,900
Gasoline	do.	24,993	31,634	28,800	27,350	30,300
Naphtha	do.	16,656	11,947	10,700	12,700	11,500
Jet fuel	do.	9,496	9,368	13,300	14,000	15,800
Kerosene	do.	209	312	540	340	124
Distillate fuel oil ¹⁰	do.	58,901	59,281	53,800	53,660	56,400
Lubricants	do.	1,736	2,090	1,960	2,050	2,400
Residual fuel oil	do.	56,323	53,077	38,600	40,270	42,100
Asphalt	do.	6,661	7,548	8,550	8,430	10,700
Unspecified ¹¹	do.	5,969	6,125	2,640	3,610	1,050
Total	do.	188,963	189,962	166,850	170,750	179,000

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^fRevised. NA Not available. -- Zero.

¹Table includes data available through December 1, 2006. In addition to the commodities listed, large quantities of construction materials (clay, sand, and gravel) are quarried. Also mined are basalt, diabase, granite, onyx, sandstone, serpentine, slate, and travertine for building stone, limestone and gypsum for cement manufacture, and garnet, molybdenum, olivine, titanium, tungsten, and zeolite, but available information is inadequate to make estimates of output.

²Data are for public sector production only. Data for private sector production are not available, but production is believed to be approximately 30,000 metric tons per year.

³Reported figure.

⁴Approximately 70% of gross production is salable product.

⁵Copper mines produce a copper concentrate (of about 22% Cu) and a cupreous pyrite concentrate (of about 0.7% Cu). Copper is not recovered from the cupreous pyrite concentrate.

⁶Data includes estimated content of Turkish copper refinery tankhouse slimes.

⁷Does not include manganiferous iron ore from the Devinci Mine, production of which amounts to several hundred thousand metric tons per year and has a manganese content of from 3% to 5%.

⁸Includes estimated content of base-metals-refinery tankhouse slimes.

⁹Estimated sales only.

¹⁰Diesel fuel (gasoil) and special heating oil.

¹¹Includes refinery fuel and losses.